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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/817,436
Filing Date: April 05, 2004
Appellant(s): SHEPHERD ET AL.

Mory B Wildes Reg. No: 36,968
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 07/23/2009 appealing from the Office action mailed 11/24/2008.

(1) Related Appeals and Interferences

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

Claims 5-8 and 12 have been canceled.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,731,684	Wu et al.	05-2004

2003/01963614 A1 Holland et al. 10-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Wu et al., US 6,731,684.

Regarding claim 1, Wu teaches a video process comprising the steps of receiving an interlaced sequence of input fields organized in a plurality of frames (GOP); identifying a cut between first and second input fields (Wu; col. 1 line 67 to col. 2 line 1 and abstract; detects scene changes between successive fields); identifying whether the cut occurs at a frame boundary and (normal scene change; column 2 line 5), where a cut occurs otherwise than at a frame boundary (scene change at field boundary of same frame; column 2 line 6-8), generating from said second field a synthetic field and replacing said first field by said synthetic field (Wu discloses when a scene change has occurred, a P frame is converted into an I frame; 9 line 21-25), the process thereby outputting a interlaced sequence of output fields in which the out is positioned at a

frame boundary (The main objective of scene change processing is to change the location of the scheduled a new GOP to align with the start of the new scene if a scene change is detected at the proximity of the originally scheduled I frame; column 4 line 26-34. By changing the location of the new GOP so that it aligns with the start of a new scene, the cut would inherently be located at the frame boundary), the sequence of output fields containing the same number of fields as the sequence of input fields (Wu discloses in multiple scene change detection scenarios where the input fields of the frames are equal to the number of frames to be encoded; see tables A-D).

Regarding claim 2, Wu teaches the second field appears after the first field in the temporal sequence (Wu discloses four possible scene change scenarios where the first field is followed by the second field; column 8 lines 40-56 and tables A-D. Further, as disclosed by Wu is that the scene change detection is done between successive fields, which would be temporally sequenced).

Regarding claim 3, Wu teaches wherein the step of generating a synthetic field from said second field (Wu discloses when a scene change has occurred, a P frame is converted into an I frame; 9 line 21-25), comprises a step of motion compensation such that objects represented in said second field are positioned in said synthetic field at the locations they are estimated to occupy at the time associated with said first field (Wu teaches the use of motion estimation which would include information describing where each section of the picture came from by use of motion vectors; column 4 line 15-16).

Regarding claim 4, Wu teaches wherein the step of generating a synthetic field from said second field (Wu discloses when a scene change has occurred, a P frame is

converted into an I frame; column 9 line 21-25), comprises a step of interpolation such that objects represented in said second field are positioned in said synthetic field with the vertical positioning associated with said first field (It would be necessary to include steps of interpolation in-order to convert a frame to an I frame. Furthermore, with interlace frames and fields, vertical positioning is associated with the first field being odd and second being even, thus not having an offset with the fields; which would equate to the first field being vertical).

Further regarding claim 9, Wu teaches A video process comprising the steps of receiving a sequence of input fields organized in a plurality of frames (GOP); identifying a cut between first and second input fields (detects scene changes between successive fields, column 1 line 67 and column 2 line 1, see abstract); identifying whether the cut occurs at a frame boundary (normal scene change; column 2 line 5) and, where a cut occurs otherwise than at a frame boundary (scene change at field boundary of same frame; column 2 line 6-8), retiming the cut (Wu discloses a delay function that accounts for the delays in processing the corresponding frame in the delay function and motion estimation; column 4 line 43-49. Since the delay accounts for delays in processing, it would be capable of re-adjusting or retiming a scene change), the process thereby outputting a interlaced sequence of output fields in which each cut is positioned at a frame boundary (The main objective of scene change processing is to change the location of the scheduled a new GOP to align with the start of the new scene if a scene change is detected at the proximity of the originally scheduled I frame; column 4 line 26-34.),the sequence of output fields containing the same number of fields as the

sequence of input fields (Wu discloses multiple scene change detection scenarios where the input frames are equal to the frames to be encoded; see Tables A-D. Since the number of input frames equals the number of frames to be encoded with their perspective frame type, i.e., I, B, P frames, and since a frame is composed of two fields, thus disclosed by Wu the number of input fields would be equal to the number of output frames).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 5-8, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al., US-6,731,684 in view of Holland et al., US-2003/0193614 A1.

Regarding claim 5, Wu discloses a video processing apparatus comprising a video input adapted to receive an interlaced sequence of input pictures organized in a

plurality of frames (GOP); a control input adapted to receive video cut information: means for identifying a video cut (MCC; the scene change detection functions may be implemented by having the MCC read the scene change measure from the video compressors to detect a scene change; column 5 line 28-32) occurring otherwise than at a frame boundary and processing means for outputting an interlaced sequence of output pictures organized in a plurality of frames with each cut occurring otherwise than at a frame boundary (Wu discloses where the use of scene change metrics detects the scene changes in both normal scene changes and scene changes that occur at a field boundary in the same frame; column 3 line 28-30. Scene change metrics sc1 and sc2 represent scene change metric for fields 1 and 2. The scene change metrics are implemented in the MCC which controls the scene change function; column 5 lines 44-49 and fig. 4. Further disclosed the invention accommodates both interlace scan and progressive scan frames; column 6 line 14-15) in the input sequence being automatically retimed to occur at a frame boundary in the output sequence (The main objective of scene change processing is to change the location of the scheduled a new GOP to align with the start of the new scene if a scene change is detected at the proximity of the originally scheduled I frame; column 4 line 26-34), the sequence of output fields containing the same number of fields as the sequence of input fields (Wu discloses multiple scene change detection scenarios where the input frames are equal to the frames to be encoded; see Tables A-D. Since the number of input frames equals the number of frames to be encoded with their perspective frame type, i.e., I, B, P frames, and since a frame is composed of two fields, thus disclosed by Wu the number

of input fields would be equal to the number of output frames). However, Wu fails to teach the input sequence being automatically retimed to occur at a frame boundary in the output sequence. Holland discloses the field sequence generator generates field sequence reorganization information, which can be applied to the disrupted or duplicated disrupted video signal to generate an undisrupted video signal. The combination of the reorganization information and the field sequence generator enable the field sequence generator to deletes, repeat and/or swap fields within discontinuous 2-3 field sequence (Holland; Paragraph [0027]). Further, the field sequence generator performs the reorganization by associating a relative delay for the fields of the discontinuous 2 - 3 field sequence (Holland; Paragraph [0028]). The combined reorganization information and the field sequence generator has the functionality of swapping fields, along with the delay function that accounts for the delays in processing the corresponding frames in delay function and motion estimation; then the above combination would be capable of reorganizing the fields so that the retiming occurs at the frame boundary.

Therefore, it would have been obvious to one ordinarily skilled in the art at the time of the invention to combine the method of Wu with the Holland field sequence generator in order to provide an efficient method and system to correct a disrupted two/three video sequence.

Regarding claim 6 the combination of Wu and Holland as a whole further teach automatic retiming operates to bring a cut forward in time such that any motion discontinuity occurs after the cut in the output sequence (Wu discloses where a scene

change is detected in a field, the P frame is converted to an I frame. Converting the P frame to the I frame when a scene change is detected would force the scene change forward. Further disclosed by Wu is that for an MPEG film mode frame that is determined to be a scene change frame, the MPEG-recommended frame based DCT and prediction encoding is deactivated when a scene change may have occurred on a field boundary; column 13 lines 10-15. Holland discloses the field sequence generator generates field sequence reorganization information, which can be applied to the disrupted or duplicated disrupted video signal to generate undisrupted video signal the combination of the reorganization information and the field sequence generator enable the field sequence generator to deletes, repeat and/or swap fields within discontinuous 2-3 field sequence (Holland; Paragraph [0027]). Field sequence generator would also be capable of bringing a cut forward. Holland also discloses where the field sequence generator performs the reorganization by associating a relative delay for certain of the fields of the discontinuous 2-3 field sequence, and the delay information is used to generate a delay sequence for each of the fields (Holland; Paragraph [0028]). The combination of the reorganization information and the delays for each field along with the conversion from an I frame to a P frame when a scene change is detected, would be capable of bringing a cut forward when in time and motion discontinuity occurs after the cut in the output sequence).

Regarding claim 7,the combination of Wu and Holland as a whole further teaches wherein said retiming comprises the step of generating a synthetic field through motion compensation (Wu teaches a delay function **230** that accounts for the delays in

processing the corresponding frame in the delay function and motion estimation; column 4 line 43-49. Since the delay accounts for delays in processing it would include the capabilities of re-adjusting, or retiming scene change).

Regarding claim 8, the combination of Wu and Holland as a whole further teaches wherein said retiming comprises the step of generating a synthetic field through interpolation (Wu teaches a P/B frame reordering delay that delays the reordering of the video frames; column 4 line 12-14, and a delay that function that accounts for the delays in processing the corresponding frames in the delay function; column 4 line 43-49. Also disclosed is converting a P frame into an I frame; column 9 line 25-29. The main objective of scene change processing is to change the location of the scheduled a new GOP to align with the start of the new scene if a scene change is detected at the proximity of the originally scheduled I frame; column 4 line 26-34. The delay function would include steps of creating a synthetic field, as it accounts for the delays in processing).

Regarding claim 10, see claim 7 above.

Regarding claim 11, see claim 8 above.

Regarding claim 12, Wu discloses a video processing apparatus comprising a video input adapted (preprocessing stage, fig. 1) to receive a sequence of input frames (GOP); a video output adapted to provide a sequence of output fields organized in a plurality of frames (encoding stage, fig. 1); a field predictor adapted to receive a base field and to generate therefrom a synthetic field having a different timing (Wu discloses MPEG-2 encoders use only frame-based prediction and DCT for film mode pictures.

This is achieved by setting the flag frame pred_frame_dct=1 in the bit stream syntax. If frame pred_frame_dct=0, either field –or frame prediction and DCT can be used on a macroblock –by-macroblock basis for the picture; column 2 line 37-46 and column 11 line 38-44. Wu also discloses converting a P frame into an I frame if a scene change is detected at the current frame; column 7 line 65-68 to column 8 lines 1-4. Converting the P frame into the I frame is a synthetic frame, which is composed of two fields. Wu also discloses the use of delay function that accounts for the delay in processing the corresponding frame in the re-ordering delay function and the motion estimation stage; column 4 line 43-47. Since the delay function accounts for delays in processing, it would also be capable of generating a different timing for the synthetic field); a video cut detector (scene change metrics, Wu discloses where the use of scene change metrics detects the scene changes in both normal scene changes and scene changes that occur at a field boundary in the same frame; column 28-30. Scene change metrics sc1 and sc2 represent scene change metric for fields 1 and 2. The scene change metrics are implemented in the MCC, which controls the scene change function; column 5 lines 44-49 and fig. 4.), and a field substitution element controlled through said field sequence detector (Wu disclose the conversion of an P frame to an I frame) and said video cut detector (scene change metrics, sc1 and sc2 represent scene change metric for fields 1 and 2. The scene change metrics are implemented in the MCC which controls the scene change function; column 5 lines 44-49 and fig. 4) to substitute a synthetic field at a cut occurring otherwise than at a frame boundary (scene change at a field boundary of the same frame; column 2 line 3-5. Further disclosed by Wu is the

resetting of the picture type based on scene change detection for a frame sequence, and the P frame is converted to an I frame, column 10 line 1-5 and table B), thereby to retime the cut to occur at a frame boundary in the output sequence. (Wu discloses the use of scene change flag provided to a delay to account for the delays in processing the corresponding frame in the reordering delay function and motion estimation stage. The main objective of scene change processing is to change the location of the scheduled a new GOP to align with the start of the new scene if a scene change is detected at the proximity of the originally scheduled I frame; column 4 line 26-34. Since the delay function accounts for the delay in the processing corresponding frame, it would have the capabilities to retime the cut at a frame boundary).

Wu is silent in regards to a field sequence detector. However Holland discloses the use of a field sequence detector (fig. 1 and see abstract).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to combine the method and apparatus of Wu with the technology of Holland to provide an efficient method and system to correct a disrupted two/three video sequence.

(10) Response to Argument

The Examiners response to the arguments of the brief concerning the art rejection of claims 1-4 and 9-11 are as follows:

Wu Does Not Anticipate claims 1-4

Appellant argues on pg. 11 that there is no disclosure in Wu of the generation of a synthetic field of picture information from a second field, and there is no disclosure of the replacement of a first field by the synthetic field, as required by claim 1.

The Examiner respectfully disagrees. Wu discloses detecting when a scene change has occurred; a P frame is changed into an I-frame (col. 9 line 21-25, col. 10 line 1-5, and line 19-22). Since Wu discloses for a scene change, to change the P frame to an I frame, it is clear to the examiner that substituting the I frame for the P frame reads on the claimed limitation. Further disclosed by Wu is that a repeat_first_field flag to signal, when set to one, that the current frame belongs to a film and contains a redundant first field such that the frame is composed by three input fields (col. 11 line 44-50). Since Wu discloses changing a P frame to an I frame, and the frame is composed of three input fields, it is clear to the examiner that Wu is fully capable of changing either of the input fields to an I frame, which reads upon the claimed limitation. Wu discloses detecting scene changes between successive fields (abstract). Further disclosed is where the scene change is used generally herein to encompass events including a normal scene change (at a frame boundary) a scene change at a field boundary of the same frame, a bad edit or flash, or any other sudden change in a sequence of video images (col. 2 line 3-8). Since Wu discloses detecting scene

changes between successive fields, and a scene change is to encompass events including a normal scene change (at a frame boundary), it is clear to the examiner that Wu teaches detecting scene changes between fields and a frame boundary, which reads upon the claimed limitation. It should also be noted that Holland discloses to go from telescene to video [0003-0006], generates a repeat field which generates a field that is synthesized. Since the disclosure has not provided an explicit definition for a synthetic frame, and using the broadest interpretation, the Examiner understands a “synthetic field” as a field that has been converted into another picture type.

Appellant argues on pg. 11 that Wu does not disclose to take from the output bitstream a frame that has been encoded as a P-frame and to convert it into a frame compressed as I-frame. To the extent that Wu refers to fames of uncompressed video as "I, P or B", this, as would be understood by one of skill in the art, merely denotes the preliminary choice of encoding mode which will be used in the final coding stage on the video in question. However, there is no actual transformation in Wu of P-frame into an I frame.

The Examiner respectfully disagrees. Wu teaches detecting scene changes between successive fields (abstract), and where detecting when a scene change has occurred, a P frame is changed into an I frame (col. 9 line 21-25, col. 10 line 1-5 and line 19-22). Since converting is analogous to change which would indicate a transformation, and Wu discloses detecting scene changes between successive fields, and when a scene change frame is detected and the scene change frame is a P frame, it is changed to an I-frame, and a frame is composed of two fields, therefore, it is clear

to the Examiner that changing a P-frame to an I-frame when a scene change is detect is equivalent to transforming the P-frame to an I-frame.

Appellant argues on pg. 11 that it is not possible as a matter of technology to view the change of coding decision in Wu as the generation of synthetic filed (I-frame) from that P-frame.

The Examiner respectfully disagrees. Wu teaches detecting scene changes between successive fields (abstract), and where detecting when a scene change has occurred, a P frame is changed into an I frame (col. 9 line 21-25, col. 10 line 1-5 and line 19-22). Since converting is analogous to change, and Wu discloses detecting scene changes between successive fields, and when a scene change frame is detected and the scene change frame is a P frame, it is changed to an I-frame, and a field is composed of two fields, therefore, it is clear to the Examiner that changing a P-frame to an I-frame when a scene change is detected, is equivalent to converting the P-frame to an I-frame which reads upon the claimed limitation. Since the disclosure has not provided an explicit definition for a synthetic frame, and using the broadest interpretation, the Examiner understands a “synthetic field” as a field that has been converted into another picture type.

Appellant argues on pg. 12 that there is no indication that an I-frame is in any way considered a "synthetic field", as required by claim 1. Thus, there is no disclosure or suggestion of the generation of a synthetic field from a second field or the substitution of a first field by said synthetic field.

The Examiner respectfully disagrees. Wu teaches detecting scene changes between successive fields (abstract), and where detecting when a scene change has occurred, a P frame is changed into an I frame (col. 9 line 21-25, col. 10 line 1-5 and line 19-22). Since converting is analogous to change, and Wu discloses detecting scene changes between successive fields, and when a scene change frame is detected and the scene change frame is a P frame, it is changed to an I-frame, and a field is composed of two fields, therefore, it is clear to the Examiner that changing a P-frame to an I-frame when a scene change is detected, is equivalent to converting the P-frame to an I-frame which reads upon the claimed limitation. Since the disclosure has not provided an explicit definition for a synthetic frame, and using the broadest interpretation, the Examiner understands a “synthetic field” as a field that has been converted into another picture type.

Appellant argues on pg. 12 that there is no physical or even electronic conversion of a P-frame into an I-frame in Wu. Rather, Wu clearly means that a frame which in the absence of the scene change technology of Wu would have been encoded as P-frame is instead fact encoded as an I-frame. The "change" has in fact nothing whatsoever to do with the creation of a synthetic field as proposed in the present invention.

The Examiner respectfully disagrees. The examiner directs the Applicant to Wu column 9 line 21 to column 10 line 22.

Case 1-A indicates resetting of the picture types based on the scene change detection for a frame4 sequence B, P, B,P, B. Specifically, in Frame 4, the P-frame is changed to an I-frame. This indicates the start of a new GOP (column 9 line 21-24).

Case 1-B indicates resetting of the picture type based on the scene change detection for a frame sequence P, B, P, B, P. Specifically, in Frame 3; the P-frame is changed to an I-Frame. Various other frames sequences are possible. (column 10 line 1-5).

Generally, when a scene change frame is detected, and the scene change frame is a P-frame, it is changed to an I-frame. If the scene change frame is not a P-frame, the first P-frame following the scene change frame is changed to an I-frame (column 10 line 19-22).

Since converting is analogous to change, and Wu discloses that when a scene change frame is detected, and the scene change frame is a P-frame, it is changed to an I-frame, therefore, it is clear to the examiner that changing the P-frame to an I-frame when a scene change is detected, is equivalent to converting the P-frame to an I-frame, which reads upon the claimed limitation.

Appellant argues on pg. 13 that Appellants respectfully assert that the rejection of claim 1 should be reversed, as Wu cannot alone anticipate the invention of the independent claim 1. Claims 2-4 which depend from independent claim 1 and include all the limitations thereof, are likewise not anticipated by Wu for the same reasons, Appellant respectfully request that the rejection be of claims 2-4 be reversed as well.

The Examiner respectfully disagrees. For at least the reasons explained above as why Wu anticipates the claimed invention of the independent claims, claims 2-4 which depend from the independent claim are also found to be anticipated by Wu.

Wu Does Not Anticipate Claim 9

Appellant argues on pg. 14 to request that the rejection be reversed, as this rejection is founded upon the Examiner's misunderstanding of the disclosure of Wu. Applicants contend that this statement by the Examiner lacks any foundation in Wu and is directly contrary to the expressed teaching of Wu. The purpose of the delay 230 in Wu is to ensure that the picture encoding decision is in precise register with the scene change.

The Examiner respectfully disagrees. Wu teaches the use of scene change flag provided to a delay to account for the delays in processing the corresponding frame in the reordering delay function and motion estimation stage. The main objective of scene change processing is to change the location of the scheduled new GOP to align with the start of the new scene if a scene change is detected at the proximity of the originally scheduled I frame; column 4 line 26-34. Further, disclosed is a delay that accounts for the delays in processing the corresponding frame in the delay function and motion estimation; column 4 line 43-49. Since the delay accounts for delays in processing it would include the capabilities of re-adjusting, or retiming scene change. Since the delay as disclosed by Wu is to account for delays in processing the corresponding frame in the reordering delay function, and the objective of the scene change is to change the location of the scheduled a new GOP to align with the start of the new scene if a scene

change is detected at the proximity of the originally scheduled I frame, it is clear to the Examiner that the delay in Wu is capable of re-adjusting or re-timing the scene change when detected at the proximity of the originally schedule I frame. Thus, as understood by the Examiner, the delay as disclosed by Wu would have the capabilities to retime the cut at a frame boundary or boundary between two successive fields.

Appellant argues on pg. 14 that Wu does not disclose this processing and indeed the structure described in Wu is incapable of such processing. As further confirmation of the fact that Wu does not operate to re-time a cut that occurs in the middle of a frame, Appellants note that Wu proposes an alternative approach to addressing the issue of cuts within a frame—at column 2, lines 43-46, Wu proposes that, in the case of a “bad edit” where a scene change occurs at the odd/even field boundary of a frame, the step is taken of switching from frame prediction to field prediction.

The Examiner respectfully disagrees. Wu teaches where the use of scene change flag provided to a delay to account for the delays in processing the corresponding frame in the reordering delay function and motion estimation stage. The main objective of scene change processing is to change the location of the scheduled a new GOP to align with the start of the new scene if a scene change is detected at the proximity of the originally scheduled I frame; column 4 line 26-34. Since the delay function accounts for the delay in the processing corresponding frame, it would have the capabilities to retime the cut at a frame boundary.

Appellant argues on pg. 14 that in the Examiners rejection of claim 5 at page 11, line 19-21of the Final Office Action, the Examiner stated that “Wu fails to teach the input

sequence being automatically retimed to occur at a frame boundary in the output sequence." Appellant points out that the Examiner has understated the fact that, not only does Wu not teach that the input sequence is automatically retimed to occur at a frame boundary in the output sequence, but that Wu does not teach any retiming of the cut, where the cut occurs otherwise than at a frame boundary.

The Examiner respectfully disagrees. The Examiner maintains the rejection of claim as evidence by Appellants cancellation of claim 5 in the Appendix I: Claims of the Appeal Brief filed 07/23/2009.

Appellant argues on pg. 14 that that the rejection of claim 9 should be reversed, as Wu cannot alone anticipate the invention of claim 9.

The Examiner respectfully disagrees. Wu anticipates the claimed invention as presented in claim 9. Further regarding claim 9, Wu teaches A video process comprising the steps of receiving a sequence of input fields organized in a plurality of frames (GOP); identifying a cut between first and second input fields (detects scene changes between successive fields, column 1 line 67 and column 2 line 1, see abstract); identifying whether the cut occurs at a frame boundary (normal scene change; column 2 line 5) and, where a cut occurs otherwise than at a frame boundary (scene change at field boundary of same frame; column 2 line 6-8), retiming the cut (Wu discloses a delay function that accounts for the delays in processing the corresponding frame in the delay function and motion estimation; column 4 line 43-49. Since the delay accounts for delays in processing, it would be capable of re-adjusting or retiming a scene change), the process thereby outputting an interlaced sequence of output fields

in which each cut is positioned at a frame boundary (The main objective of scene change processing is to change the location of the scheduled a new GOP to align with the start of the new scene if a scene change is detected at the proximity of the originally scheduled I frame; column 4 line 26-34.),the sequence of output fields containing the same number of fields as the sequence of input fields (Wu discloses multiple scene change detection scenarios where the input frames are equal to the frames to be encoded; see Tables A-D. Since the number of input frames equals the number of frames to be encoded with their perspective frame type, i.e., I, B, P frames, and since a frame is composed of two fields, thus disclosed by Wu the number of input fields would be equal to the number of output frames).

Claims 10 and 11 are Not Obvious over Wu et al. in view of Holland et al.

Appellant argues on pg. 16 that one ordinary skill in the art would not combine Wu et al. with Holland et al.

The Examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Wu teaches an efficient video compression scheme that

detects change between successive fields, including flashes, or bad fields. Holland teaches to provide a method and system to correct a disrupted two/three-field video sequence. The relationship among Wu and Holland is that Wu teaches to detect scene changes associated with bad edits, and Holland teaches to correct a disrupted two/three field-video sequence. Further, Holland discloses disrupted video is when the video is edited without regard to the video sequence, [0004], which implies bad editing. Therefore, it is clear to the examiner, that the combination of Wu and Holland as a whole improves overall image quality. Further Holland teaches this present invention comprises novel methods and systems for correcting a discontinuous 2-3 field sequence within a disrupted video signal. A 2-3 pattern fixer constructed in accordance with the present invention can be operated in a one-pass mode and/or a two-pass mode. In a one-pass mode, the disrupted video signal is analyzed to generate correction information, which is used to correct the disrupted video signal as it passes through the 2-3 pattern fixer, preferably in real time, resulting in an undisrupted video signal with a continuous 2-3 field sequence. In a two-pass mode, the disrupted video signal is analyzed to generate correction information, which is then stored. This correction information is then used to correct a duplicate of the disrupted video signal, resulting in an undisrupted video signal with a continuous 2-3 field sequence, [0007]. Thus, it is further clear to the Examiner that Wu and Holland are combinable, as the discontinuities disclosed by Holland are due to scene changes.

Appellant argues on pg.16 that there is no motivation for one of ordinary skill in the art to combine the teachings of two documents.

The Examiner respectfully disagrees. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Wu with the Holland field sequence generator in order to provide an efficient method and system to correct a disrupted two/three video sequence.

Appellant argues on pg. 16 that if Wu et al. and Holland et al. were combined, the invention of claims 10-11 would not be rendered obvious. In particular, as discussed above, Wu does not show the claimed step of "where a cut occurs otherwise than at a frame boundary, retiming the cut", as recited in claim 9 upon which claims 10 and 11 are dependent. In the apparatus of Wu et al., no consideration is given to the frame structure of the interlaced fields.

The Examiner respectfully disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, the Examiner relied upon the teachings of Wu. Wu discloses a method and apparatus are provided for detecting scene changes between successive fields in a digital television signal, see abstract. Further, Wu teaches the term "scene change" is thus used generally herein to encompass events including a normal scene change (at a frame boundary), a scene change at a field boundary of the same frame, a bad edit or flash, or any other sudden

changes in a sequence of video images, col. 2 line 3-8. Since Wu discloses to detect scene changes between successive fields, and a scene change is thus used to generally herein encompass events including normal scene change (at a frame boundary) and a scene change at a field boundary of the same frame, it is clear to the Examiner that Wu disclose to detect scene changes between successive fields of the same frame, which reads on the claimed step of where a cut occurs otherwise than a at a frame boundary. Further, Wu discloses a delay function that accounts for the delays in processing the corresponding frame in the delay function and motion estimation, col. 4 line 43-49. Since the delay accounts for delays in processing, the delay as disclosed would be capable of re-adjusting or retiming a scene change. Thus, the Examiner maintains that Wu teaches the limitation of claim 9, which claims 10-11 are dependent on. Further, Wu teaches the limitations of claims 10-11. Wu discloses where Wu teaches a P/B frame reordering delay that delays the reordering of the video frames; column 4 line 12-14, and a delay that function that accounts for the delays in processing the corresponding frames in the delay function; column 4 line 43-49. Also disclosed is converting a P frame into an I frame; column 9 line 25-29. The main objective of scene change processing is to change the location of the scheduled a new GOP to align with the start of the new scene if a scene change is detected at the proximity of the originally scheduled I frame; column 4 line 26-34. The delay function would include steps of creating a synthetic field, as it accounts for the delays in processing.

Appellant argues on pg. 16 that Holland et al. does not solve the deficiencies of Wu et al. with respect to independent claim 9. In Holland, et al., a disrupted video signal

is analyzed to generate correction information and used to correct the disrupting video signal, resulting in undisrupted video signal with continuous 2-3 field sequence. However, there is no disclosure in Holland et al. of the feature of automatic re-timing of the cut to occur at a frame boundary, as recited in claim 9.

The Examiner respectfully disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, The Examiner relied upon the teachings of Wu. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "automatic retiming") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Appellant argues on pg. 16 that claims 10-11, which are dependent upon independent claim 9 and require all the steps thereof, are likewise not obvious based upon Wu et al. and Holland et al., and Appellants respectfully request that this rejection be reversed.

The Examiner respectfully disagrees. For at least the reason explained above as to why the independent claim is anticipated by Wu, the Examiner maintains that the dependent claims are as well.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jessica Roberts/

Examiner, Art Unit 2621

12/02/2009

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